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An
Inaugural Essay
On
Hydrothorax
By
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Of
Pennsylvania.

Passed March 4th 1823

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A preternatural collection of serous or watery fluids in the cellular membrane or cavities of the body, has received the general appella=
=tion of dropsy. The disease has received diffe=
=rent names, according to the different situa=
=tions in which the fluid is placed: thus: we have Anasarca, or dropsy of the cellular membrane. Ascites, when the collection takes place within the cavity of the abdomen, and Hydrothorax, when the collection takes place within the chest. To the last form of the disease, my observations in the following essay are chiefly directed; I say chiefly, because, the pathology of this disease is equally applicable to the other forms of dropsy.

Remote causes. Dropsy is generally the effect of long continued diseases; by which the system becomes much disordered; as Inter=
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tion. It also arises from a diseased state of the great viscera of the body: as the liver, spleen and lungs. The free use of spirituous liquors, by debilitating the stomach, and through the medium of it, the general system, is frequently a remote cause of this disease. Much controversy has existed respecting the proximate cause of dropsy. It is a fact well known to Physiologists and Anatomists, that a fluid is continually exuding from the exhalent vessels into all the cavities and interstices of the human body. This fluid by constantly moistening the surfaces of these cavities, facilitates the various motions of the body. But in order to obviate any inconvenience, that must arise from the accumulation and stagnation of such fluids, another set of vessels called absorbents open by innumerable mouths on the surface of these cavities, and convey this fluid, after it has performed its office

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to the blood. Thus in health a due equilibrium is preserved between these two sets of vessels. This fact being established, we must consequently look to the loss of equilibrium, between the exhalents and absorbents, as the cause of the disease. All accumulation therefore is disease but is it the exhalents or absorbents that are in fault? some contend that it is owing to an excess of serous effusion, others to a decay in the powers of absorption. By the Practitioners of our own Country, it is generally attributed to an increased exhalation. But they all agree that our remedies should be directed to the absorbents. The English writers almost without an exception have considered dropsy to be dependent on an antiphlogistic diathesis or what they have denominated a laxity of the system. Those of our own Country, on the contrary have almost as universally held it to be a disease of high action.

Most probably it is generally dependant on increased action of the Vascular system & diminished action of the Absorbents – since like a balance these two systems are usually in opposition to each other

or of a phlogistic diathesis. Dropsy most frequent=
=ly is associated with a phlogistic diathesis, but
it may occur in an opposite state of the
system. Dr. Blackall, a Physician of considerable
eminence, who has written a work on dropsy;
says the best criterion of the state of the sys=
=tem is the urine. From a number of experiments
he was led to the following general conclu=
=sions. That when dropsy proceeds from an
increased action, the urine is coagulable by
heat or nitric acid like the serum of blood.
second, when from feeble action the urine is
scanty and pale, and is not coagulable by
heat or nitric acid. third, when it arises
from visceral unsoundness it is marked
by a scanty high coloured urine, which
is loaded with a red latenitious sediment,
and deposits nothing by heat or nitric acid
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and from the respectability of the author, we may justly conclude that it is worthy of trial. Symptoms. There is reason to believe that dropsy of the chest may be forming for some time, without the patient being aware of the nature of the disease. The disease frequent=ly comes on with a sense of anxiety about the lower part of the sternum; attended by some difficulty in breathing on slight exertion: but more particularly when ascending an height. After a while these symptoms increase in severity and frequency, returning upon the slightest motion of the body or emotion of the mind. The difficulty of breathing becomes much more constant, and is much aggravated when the patient is in an horizontal posture. Commonly at the same time, lying on one side is more comfortable than on the other, or perhaps on the back more so than either side, this

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is owing to the effusion having taken place in one or the other sack of the pleura. These circumstances are usually attended with a frequent cough, which is at first dry, but which after some time is accompa=
=nied with an expectoration of thin mucus. There is also a numbness and a degree of palsy in one or both arms. The face assumes a peculiar livid aspect, particu=
=larly the mouth and nose, and when the respiration becomes very much impeded, these parts become nearly black, showing that the blood is imperfectly oxygenated from the great interruption to its circula=
=tion through the lungs. This disease, as other dropsies, is attended with thirst and a scarcity of urine. The pulse is quick, active, irregular, and frequently intermitting. In some cases the patient is troubled with violent palpitations of the heart.

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There is another symptom, which sometimes takes place and has been thought to be a certain characteristic of this disease, and that is when soon after the patient has fallen asleep, he is suddenly awaked by a most distressing sense of anxiety and suffocation; attended with palpitations of the heart. These feelings immediately require an erect posture, sometimes the difficulty of breathing continues to prevent sleep for a great part of the night. Dr. Cullen has remarked that he never found this symptom attending any other disease of the thorax, and when it was accompanied with difficulty of breathing and with any of the smallest symptoms of dropsy; he had no doubt in concluding of the existence of water in the chest. Diagnosis. There are several diseases with which Hydrothorax may be confounded, such as Asthma, Angina Pectoris, organic diseases of

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the heart and its great bloodvessels, and some of the affections of the stomach. From these it may be distinguished by a careful examination of the history of the case. Two symptoms have been considered as pathognomic. Corvisart says; by striking on the stomach, when the patient is in an erect posture; fluctuation is always rendered evident. Bichat has also informed us, that by placing the patient in a recumbent posture, and then pressing forcibly on the abdomen, you aggravate all the symptoms of the disease. The Prognosis is for the most part difficult and unfavourable; Dr. Cullen says that this disease seldom admits of a cure, or even of an alleviation from our remedies. The patient may die from the gradual emaciation of his system; or he may be apparently recovering, and suddenly carried off: while moving from one place

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to another. This circumstance should make Practitioners extremely guarded in delivering their opinion respecting the favourable termination of this disease. Dissections show besides the water contained in one or both sacks of the pleuræ, that the lungs are frequently diseased, and compressed in proportion to the quantity of water effused. Treatment — When called to a patient labouring under Hydrothorax, our first object is the reduction of arterial action: we do this by bleeding, which ought to be repeated as often as the pulse, pain in the breast, and the appearance of the blood would seem to require. Cupping is an excellent auxiliary to the lancet, they should be applied to the back. After using both general and topical depletion, we then have recourse to blisters. they should be large enough to cover the whole side, and they should be kept discharging

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for some time. If these means fail of accomplishing a cure, we then have recourse to diuretics. Of these the nitrate of potash is to be preferred in the commencement. Squill alone or in combination has been found very useful in this disease. Some difference of opinion, however, has existed as to the mode in which it should be administered. Dr. Cullen supposed if given in such doses, as to effect either the stomach or bowels, its diuretic powers were greatly abated. Home, on the contrary, gave it during the day so as to excite vomiting, and supported his patient at night with cordials. For me to attempt to settle this controversy between these two great men would be idle. Respecting this controversy, Dr. Chapman remarks, that the point in dispute, is not whether emetics or purgatives are useful in dropsy, but whether

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the peculiar powers of the squill in these cases. are best attained by pushing the medicine to this extent: he farther adds judging from his own experience, a slight degree of nausea is the just medium in its employment. nor is this absolutely necessary; for in some cases. I have commanded its full effects. without having observed the slightest effection of the stomach. His mode of giving it is in combination with Calomel: in the following proportions. 1gr. of Calomel and 3 of squills. The mouth becoming effected by this combination, is an auspi:
:cious circumstance; all the distressing symptoms soon subside after a salty:
:alism, which is a curious fact, since mercury alone, though urged to a salivation, does not produce the same effect. Dr. Cullen objected to this com:
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produce purging, which he thought interfered with the diuretic powers of this medicine. It appears that Dr. Cullen is mistaken: even if it does purge unduly, we can restrain it by opium. Great praise has been bestowed on Digitalis, as a remedy in all the different forms of dropsy. In Hydrothorax Dr. Hamliton says he never has seen a case however desperate or far advanced, that was not speedily relieved by it. From subsequent trials of this medicine in this disease, his statements have not been verified. Though Digitalis will sometimes cure Hydrothorax, I believe it is now generally considered a precarious remedy in this disease. This medicine is administered in three different forms, substance, tincture and infusion. If it is used in substance the dose to begin with is 1gr.: if the saturated

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tincture is used, the dose is 5 or 6 drops: if the infusion the dose is a table spoon full. These doses should be carefully increased, closely watching their effects: if the medicine produces sickness, purging, and retardation of the pulse: with a sort of disturbance of the brain, it should be withheld. Dr. Withering says that digitalis should only be given when the system is considerably reduced, in this opinion I believe all Practitioners coincide with him. From a number of experiments instituted by Dr. Ferriar, for the purpose of ascertaining the most powerful diuretic: he was led to the conclusion that a combination of the following substances was the most active, particularly in Hydrothorax. Take of the extract of Elaterium 1gr. sweet spirits of nitre 2 oz. Tincture of Squill and the oxymel of Colchicum of each ½ oz, and Syrup of Buckthorn 1 oz. The dose of

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the combination is ℥ three or four times during the day. In this disease active purging must be avoided, for it increases the debility while the dyspnoea and other distressing symptoms are aggravated; without promo: ting absorption; nevertheless the bowels must be kept in a soluble state. Doubts have been expressed by some practitioners, whether the patient should be indulged in drinks, which an intolerable thirst makes him frequently desire. It was thought by these Physicians that instead of passing off by the natural emunctories: it was effused into some of the cavities of the body, aggravating the disease. Dr. Cullen on this point remarks. I have frequently found that an entire abstinence from drinking, by diminishing the quantity of urine, allowed the secretories of the kidneys to fall into a contracted state, so

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that the quantity of urine voided, was still farther diminished, and as I judged tended to increase the effusion, and thereby to aggravate the disease. He therefore lays it down as a general rule, when the quantity of water discharged is equal or nearly so to the quantity taken in, it will be advantageous to continue the drinks. In the support of his opinion, we have the evidence of Sir George Baker, of Sir Francis Milman, who have declared, they have cured dropsy by these means alone. Common water answers very well, though it may be rendered more active by the addition of some of the vegitable acids. The next object is to prevent a return of the disease, for this purpose we use some of the tonics, the bark and steel is generally given. If the disease should show a tendency to a

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return, we should recommence with the diuretics, and combine the carbonate of potash with some of the bitter tonics as recommended by Sir John Pringle. Diet. In the febrile form of the disease it should be low; but when the patient is convalescing, it should be nourishing but not stimulating, such articles as oysters, eggs, jellies, &c. The patient should eat little at a time, but much more frequently than the common meals —